



PREVALENCE, CLINICAL FEATURES, BIOCHEMICAL FEATURES AND HORMONAL FEATURES IN ADOLESCENT GIRLS WITH PCOS.

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ABSTRACT

This is a tertiary care hospital based observational study, to study the burden of PCOS and suggest early interventions. The study period is from 1st April 2021 to 31st October 2021 for a period of 7 months. All adolescent girls between the age group of 13 to 19 years, who had attained menarche more than 2 years before the study, unmarried and willing to participate were enrolled. History and investigation chart attached for each patient eliciting.

Key words Prevalence. Clinical Features. Biochemical Features.

INTRODUCTION

Polycystic Ovarian Disease is a common endocrine disorder presenting in a continuum with varying clinical symptoms and signs, from adolescent age group to perimenopausal age group. Global estimates of PCOS prevalence are highly variable, as high as 26% (1,2). Rotterdam Criteria 2003 (3) has been widely adopted all over the world which mandates the presence of two of the following three finding

- Evidence of Hyperandrogenism, Clinical or Biochemical
- Chronic anovulation, Ovulatory dysfunction
- Polycystic appearing ovaries in USG

After excluding other causes such as congenital adrenal hyperplasia, cushing syndrome, and androgen secreting tumors.

The data from a large representative unselected population support the concept that PCOS is the most common endocrine abnormality of reproductive aged women(4). Given the varying presentation of PCOS such as infertility, abnormal heavy bleeding , obesity and risk of Recurrent pregnancy loss, type 2 diabetes mellitus, dyslipidemia , cardiovascular disease, endometrial carcinoma, high prevalence of anxiety and depression and risk of OHSS in women undergoing IVF, the financial implications of their treatment is high. Early screening during adolescents and early management options go a

long way in reducing the cost of treatment and promoting healthy lifestyle. Estimates of PCOS and its clinical, biochemical, hormonal features in ethnic group is essential to help policy makers take decision and introduce community level healthcare policies. Hence the present study.

AIMS AND OBJECTIVES

The aim of the study is to estimate the prevalence, clinical features biochemical features and hormonal features of PCOS in adolescent girls, attending gynec OPD in a tertiary care medical college hospital with one or more symptoms and signs of PCOS. Rotterdam Criteria was used to diagnose PCOS. Secondary endpoint is to study the effect of weight loss in symptom alleviation.

Oligomenorrhea:

Indirect marker for anovulation (infrequent menstrual cycles > 35 days)

Age matched cut-offs for BMI for girls below 18yrs (5) used. Girls who were overweight and obese advised weight loss by exercise and nutritional advice given.

Clinical Hyperandrogenism :

Hirsutism assessed by ferryman Galloway Score(6) of >_ 8 over 9 body parts.

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Body mass index:

- ✚ Underweight - BMI < 17.9 kg/m³
- ✚ Overweight - BMI > 23 kg/m³
- ✚ Obese - BMI > 25 kg/m³
- ✚ Normal - BMI 18 -23 kg/m³

PCO on USG: multiple small follicles 2 to 9 mm more than 12, hyperechogenic central stroma, string of pearl sign. The presence of a single multifollicular ovary is sufficient to provide the sonographic criterion for PCOS.

Biochemical hyperandrogenism is based on the measurement of free testosterone, free androgen index or calculated bioavailable testosterone, androstenedione and dehydroepiandrosterone sulphate.

According to the NCEP ATP III definition, metabolic syndrome is diagnosed if three or more of the following five criteria are met:

- Waist circumference if more than 35 inches
- BP more than 130/85 mmhg
- Fasting TG level more than 150 mg/dl
- Fasting HDL less than 50 mg/dl
- Fasting blood glucose level greater than 100 mg/dl or are taking glucose lowering medications.

The following blood investigations were done on day 2 of menstrual cycle

Sr.FSH, Sr.LH, TFT, Sr.prolactin, DHEAS, 17 OHP, Sr.Free Testosterone, GTT with 75 gms glucose, Sr. Lipid Profile, SHBG and Height, weight, BMI, BP measured. Manufacturer's instructions were followed for preparation, set up, dilution, adjustments, assay and quality control procedures in lab.

EXCLUSION CRITERIA

Thyroid disorders, hyperglycemia, medical illness like heart, renal, liver or pulmonary conditions.

STATISTICAL ANALYSIS and RESULTS

912 adolescent girls were enrolled into study after completing all biochemical and hormonal tests and who were diagnosed with PCOS. Prevalence of PCOS was estimated at 40%, taking into account the total number of gynec OPD cases in the study period of one year. All the signs and symptoms of PCOS were present in only 10% of cases. 30% had 2 symptoms or signs. Mild PCOS was predominant with J phenotype (52%), Frank PCOS (27%), ovulatory PCOS was seen in 15% and classic PCOS was seen only in 9.7%.

Oligomenorrhea has good positive predictive value (86%) and negative predictive value (93%), followed by polycystic ovaries on USG. Hirsutism was present in 6%. 60% of the adolescent girls diagnosed with PCOS were obese, 20% had normal BMI and 20% were underweight.

20% had increased blood sugar levels, increased fasting insulin levels. 50% had increased FSH:LH ratio of more than 1:3. Obese PCOS group had higher mean value of post 75gms GTT blood sugars and increased fasting insulin levels with lower levels of SHBG compared with lean PCOS group and the difference was statistically significant. Not much difference was found in lipid profile values of obese and lean PCOS. Only 4 girls were diagnosed with Metabolic syndrome.

DISCUSSION

Due to different diagnostic criteria, different age group and ethnicity, our study group cannot be compared with other studies. Puberty is a period of HPO axis immaturity with physiological hyperandrogenism and hyperinsulinemia, mimicking PCOS (7). Care must be taken to avoid misdiagnosing PCOS in adolescents who attained menarche less than 2 years before presenting. Our data has found much higher prevalence of PCOS in adolescent girls presenting with symptom which is alarming, at the same time providing a window of opportunity to introduce lifestyle and dietary changes, exercises for weight management coupled with medical management to treat clinically presenting symptoms. 30% of obese PCOS girls who achieved 5 to 10% weight loss in three months during the study period started having regular cycles compared to their counterparts who were not able to achieve weight loss. Previous studies might have underestimated PCOS in the community provided many girls with irregular menstrual cycles or overweight do not seek medical advice (8).

CONCLUSION

We conclude, our urban based study diagnosing PCOS among adolescent girls shows a higher prevalence rate of 40% compared to previous available studies. This shows PCOS is an emerging disorder starting in adolescence which implies early screening could provide opportunity for promoting healthy nutrition and lifestyle. The emerging health budget of India is unlikely to meet the costs of managing associated multiple complications of PCOS (9). It is high time PCOS is recognized as an important non-communicable disease, with cost of screening being only approximately 2% compared with cost of managing PCOS (10). Community Screening programmes can be initiated in schools by educating teachers and including PCOS in high school syllabus.

Acknowledgements

We sincerely thank our Head of the department, Dean and the college ethical committee for extending all the necessary support.

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